

Pattern of Injuries in Accident Patients Presenting To a Tertiary Care Hospital in India.

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ABSTRACT

Background: Trauma is the leading cause of death worldwide. Trauma presents with numerous types of injuries that demand rapid evaluation and intervention to save the life of the patient. This study aims to understand the pattern of injuries in accident patients presenting to a tertiary level hospital in southern India. **Methods:** After obtaining approval of the institutional ethics committee, we included all patients who presented to the emergency ward of AJ Institute of Medical Sciences, Mangalore from November 2015 till October 2016. All patients who presented to the emergency ward during the study period were included in the study, with no exclusions. For all included patients, clinical information were collected in a predesigned and pretested clinical report form. All patients were subjected to clinical evaluations on arrival to the emergency department, where general examination, measurement of vitals, and whole body examination was done, so as to detect any unrecognised injuries. **Results:** 648 patients were included, average of the patients being 31.77 ± 13.16 years. 453 patients were males and medico-legal reporting was done in 197 patients. Majority of the patients were of road traffic injury (51%), followed by assault (15%), and accident cases (13%). Around 35% of the patients had head injury, 22% had fractures of any limb, 16% had blunt abdominal injury and chest injuries, 8% had amputated limbs and spine injuries each. **Conclusion:** Our results provide descriptive statistics to the policy makers, healthcare providers, and public health officials to promote and relocate necessary resources more effectively to address the country's acute needs.

Keywords: Accident, fracture, injury, epidemiology.

INTRODUCTION

Trauma is a leading cause of mortality globally. Worldwide, road traffic injuries are the leading cause of death between the ages of 18 and 29. According to the World Health Organization (WHO), road traffic injuries accounted for 1.25 million deaths in 2014, and trauma is expected to rise to the third leading cause of disability worldwide by 2030. As per report by the ministry of road transport, Government of India 1.4 lakhs road accident happened in 2007 with 40,612 people killed and 1.5 lakhs people injured. Hence, India is leading the world in fatalities due to road accidents. The World Report on Road Traffic Injury Prevention indicates that by 2020, RTI will be a major killer accounting for half a million deaths and 15 million Disability Adjusted Life Years (DALYs) lost. Injuries on roads, at home and in work place have increased due to lack of safety-related policies and programs.

life of the patient. Unintentional injuries include injuries related to traffic, occupation, drowning, falls and work related. Medical science has always worked to reduce mortality from trauma. Globally, around 16, 000 people die from injury every day. Patients with serious traumatic injuries have a significantly lower likelihood of mortality or morbidity (10.4 versus 13.8%; relative risk [RR] 0.75, 95% CI 0.60-0.95) when treated at a designated trauma center. All trauma patients require a systematic approach to management in order to maximize outcomes and reduce the risk of undiscovered injuries. Optimal care requires effective and efficient communication and teamwork among clinicians.

Therefore it is important to understand the epidemiology of injuries caused to accident patients which present to hospitals. This study aims to understand the pattern of injuries in accident patients presenting to a tertiary level hospital in southern India.

MATERIALS AND METHODS

This cross sectional study was designed in the Department of Ophthalmology, AJ Institute of

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Medical Sciences, Mangalore. After obtaining approval of the institutional ethics committee, we included all patients who presented to the emergency ward of AJ Institute of Medical Sciences, Mangalore from November 2015 till October 2016. The study was performed according to the prescribed guidelines provided by the Indian Council of Medical Research, New Delhi. Hospital is a major healthcare provided in Mangalore, with a capacity of over 1000 beds. All patients who presented to the emergency ward during the study period were included in the study, with no exclusions. For all included patients, clinical information were collected in a predesigned and pretested clinical report form. We collected socio-demographic data, date and site of trauma, type of trauma, and type of injuries. We tried to collect as much information from the patient directly. For others, we referred to their medical records. All patients were subjected to clinical evaluations on arrival to the emergency department, where general examination, measurement of vitals, and whole body examination was done, so as to detect any unrecognised injuries.

Data collected were codified and entered in to Microsoft excel sheet and imported in to the Statistical Package for Social Scientists (SPSS). Values were expressed as mean \pm SD.

RESULTS

In our study, 648 patients were included, average of the patients being 31.77 ± 13.16 years. 453 patients were males and medico-legal reporting was done in 197 patients [Table 1]. Majority of the patients were of road traffic injury (51%), followed by assault (15%), and accident cases (13%). Poisoning, snakebite, industrial accidents, home injuries, falls, burns and drowning were less common in our patient population. Around 35% of the patients had head injury, 22% had fractures of any limb, 16% had blunt abdominal injury and chest injuries, 8% had amputated limbs and spine injuries each [Table 2].

Table 1. Baseline characteristics of patients included in the study.

Total number of patients	648
Average age of patients	31.77 ± 13.16 years
Age distribution	
Males	453
Medico-legal reporting	197
Type of presentation	
Accident cases	88
Assault	97
Burns	12
Drowning	8
Fall	32
Home injury	12
Industrial accident	15
Poisoning	36
Road traffic injury	328
Snakebite	20

Table 2: Type of injury in the patients included in the study.

Type of injury	n
Head injury	227
Head injury with fracture upper limb	29
Fracture (any limb)	145
Blunt abdominal injury and chest	103
Amputated limbs	52
Spine injury	49
Poisoning	23
Crush injury	12
Small bowel perforation	4
Pelvic injury	4

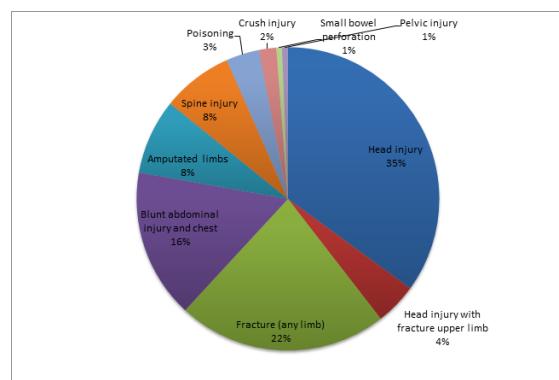


Figure 1: Injury types of the patients.

DISCUSSION

This study gives the first detailed description of trauma cases which present to AJ Institute of Medical Sciences, Mangalore. Over the past two decades, significant urbanisation and industrialisation has also increased the injuries on roads. And this is in part due to lack of safety related policies and program in India. The growing seriousness of the problem can be judged by the fact that very limited information is available which can shed some light on research and development on motor vehicle safety. 20 to 40 years of age group is the most active phase of life. Previous studies have reported 20 to 40 years age group to be most commonly involved in road traffic accidents. These, being the most productive years of life, also result in financial loss to the society and country in general. Majority of these patients were males, and very few had a medico-legal report registered. This is due to greater male exposure on urban streets and low representation of women in India's work force. Similar higher incidence of traffic accidents among males has been found by many other researchers. In our study, very few accident victims had medicolegal reporting done. Various factors can be responsible for this. Previous studies have also documented majority of accident patients belonging to lower socio-economic status. This is because this group usually travels by two wheelers which are more accident prone.

In our study, head injuries were the most common types of injuries. Other studies have shown similar

findings. Blunt chest trauma puts multiple structures at risk of injury. In addition to direct trauma, rapid deceleration and other mechanisms can cause injury to thoracic structures. Major concerns include chest wall injury, such as rib fractures or flail chest; cardiovascular injury, such as blunt aortic injury or cardiac contusion; and pulmonary injury, such as contusions or lacerations. Blunt aortic injury is the most lethal injury of the thorax if untreated. Up to 20% of deaths from motor vehicle collisions are attributable to blunt cardiac injuries.

Some of the limitations of the study were that we did not collect data on alcohol consumption in the accident victims. Alcohol is an important and well documented risk factor for being involved in an accident. Secondly, we did not look at the correlation of the accident with time and day of the week, which is another important factor.

CONCLUSION

This paper provides descriptive statistics to the policy makers, healthcare providers, and public health officials to promote and relocate necessary resources more effectively to address the country's acute needs. The findings of this paper is also intended for hospital managers who train hospital staff to deal with such situations. Future research should focus on understanding the correlation of type and mode of accident with individual patient characteristics.

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